REMARKS

Claims 12-21 are all the claims pending in the application.

As an initial matter, Applicants wish to thank the Examiner for the courtesy extended to the undersigned in granting the telephone interview of June 22, 2010.

I. Double Patenting Rejection

Claims 12-21 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 8-17 of US 2008/0042159 (issued into U.S. Patent No. 7,498,611) in view of Uemura (US 6,331,450 B1).

Without acquiescing in the merits of the above rejection, to advance prosecution, Applicants submit herewith a Terminal Disclaimer, disclaiming the terminal part of the statutory term of any patented granted on the present application which would extend beyond the expiration date of the full statutory term of prior patent No. 7,498,611, to thereby obviate the rejection. Withdrawal is respectfully requested.

II. Claim Rejections under 35 U.S.C. § 103

Claims 12-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (US 6,331,450 B1) in view of Nakajima et al (US 2002/0104999 Al; "Nakajima").

Claims 19-21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura (US 6,331,450 B1) in view of Nakajima et al (US 2002/0104999 A1) and further in view of Okazaki et al (5,977,566; "Okazaki").

On page 5 of the present Office Action, the Examiner asserted that "Uemura discloses a gallium nitride-based compound (Fig. 1, col. 4, lines 40-41) semiconductor light-emitting device (Fig. 1, col. 4, lines 40-41), comprising a transparent positive electrode 113..."

During a telephone interview conducted on June 22, 2010, the Examiner clarified that the Office Action intended to cite numeral 120 (not 113) of Uemura as a transparent positive electrode.

Applicants respectfully traverse the above rejections, and request the Examiner to reconsider in view of the following remarks and the Declaration evidence previously submitted on December 22, 2009.

Independent claim 12 recites a gallium nitride-based compound semiconductor light-emitting device comprising a transparent positive electrode having a contact metal layer in contact with a p-type semiconductor layer, a current diffusing layer on the contact metal layer, the current diffusing layer having an electrical conductivity larger than that of the contact metal layer, and a bonding pad layer on the current diffusing layer, wherein the thickness of the contact metal layer is from 0.1 to 7.5 nm.

Uemura, either alone or in view of Nakajima, does not disclose a gallium nitride-based compound semiconductor light-emitting device comprising a transparent positive electrode, including a contact metal layer having a thickness of from 0.1 to 7.5 nm, as required by independent claim 12 of the present application.

Contrary to the Examiner's assertion, Uemura does not disclose a gallium nitride-based compound semiconductor light-emitting device comprising a transparent positive electrode.

The electrode 120 of Uemura is not a transparent electrode. As shown in Fig. 1 of Uemura, the light from emission layer 104 is reflected on the interface of first metal layer 111 and p-layer 106, and therefore, the electrode 120 of Uemura is not a transparent electrode and therefore does not meet the present claims.

The present invention is directed to a gallium nitride-based compound semiconductor light-emitting device comprising a transparent positive electrode, which transmits light from an emission layer. Therefore, the electrode 120 of Uemura and the instantly claimed transparent positive electrode are entirely different from each other with respect to functionality.

In this regard, Applicants previously submitted an executed Declaration by Mr. Watanabe on December 22, 2010 showing that the instantly claimed contact metal layer having the thickness in a range of 0.1 to 7.5 nm has the desired transparency, and that the relatively thick (about 300 nm) first metal layer of Uemura does not. Reconsideration of the Declaration evidence is respectfully requested.

Further, the Examiner acknowledged that Uemura does not disclose the claimed thickness of the contact metal layer of from 0.1 to 7.5 nm. Nakajima was cited by the Examiner as allegedly disclosing a thickness of the contact metal layer 17 is from 0.1 to 7.5 nm (Fig. 15, paragraphs 69, 71). Applicants disagree.

As pointed out in the Response filed December 22, 2009, reducing the thickness of the contact metal layer of Uemura would render the device of Uemura unsatisfactory for its intended purpose.

In particular, as demonstrated in Declaration by Mr. Watanabe that was submitted on December 22, 2009, contrary to the Examiner's assertion, there is no apparent reason to reduce the thickness of the contact metal layer by forty fold (to an upper limit of 7.5 nm) so as to obtain a *transparent* contact metal layer having a property opposite that of the *opaque* contact metal layer of Uemura. Indeed, reducing the thickness of the contact metal layer of Uemura as suggested by the Examiner would render the device of Uemura unsatisfactory for its intended purpose.

The contact metal layer 111 of Uemura reflects light from emission layer 104, and thus serves as a reflective layer. If the contact metal layer 111 of Uemura had a thickness of 7.5 nm or less, as is the case with the present invention, the light from emission layer 104 would transmit through contact metal layer 111 and then reflect on current diffusion layer 112. Since current diffusion layer 112 comprises gold (Au), it reflects yellow and red light and absorbs blue and green light. Referring to the description of gold in Wikipedia (a copy of which was submitted on December 22, 2009), if gold is so thin as to be translucent, the transmitted light appears greenish blue, because gold strongly reflects yellow and red lights (see the underlined part in the attached printout of the corresponding web site). In other words, gold transmits blue and green light when it is thin enough; however, it absorbs such blue and green light when its thickness is as thick as 1.2 μm. Accordingly, if the contact metal layer 111 in the device of Uemura had a thickness of 7.5 nm or less, blue light emitted from emission layer 104 could not be drawn outside the device. Consequently, the device could not operate as a light emitting device.

Therefore, one of ordinary skill would not adapt a contact metal layer having the claimed thickness of the present invention, to a light-emitting device of Uemura.

In addition, Uemura does not disclose a bonding pad layer a bonding pad layer on the current diffusing layer, as required by independent claim 12 of the present application.

On page 5 of the present Office Action, last second paragraph, the Examiner asserted that Uemura's Fig. 1 modified by Uemura's Fig. 4A discloses a bonding pad layer 320 (Uemura, Fig. 4A, col. 8, line 28, common in the art) that is on the current diffusing layer 112, 312 (Uemura, Figures 1, 3A). During the telephone interview conducted on June 22, 2010, the undersigned pointed out that Examiner had previously withdrawn such position, because Uemura discloses in

Fig. 1 and Fig. 4A two separate and independent embodiments. The embodiment disclosed in Fig. 1 of Uemura is a flip-chip-type device. The embodiment disclosed in Fig. 4 of Uemura is wire-bonding-type device.

In response, the Examiner took the position that although Fig. 1 of Uemura does not show a bonding pad layer, in the Examiner's view, the light-emitting semiconductor device of Fig. 1 of Uemura would require a bonding pad layer to be functional. Applicants respectfully disagree.

A positive electrode of a flip-chip type device is typically connected to a lead frame with a solder or bump, without using a bonding pad. A flip-chip type device is not to be wire-bonded, and thus does not need a bonding pad.

As shown in FIG. 1 of Uemura, the positive electrode 120 does not have a bonding pad formed thereon. As shown in FIG. 6B and described at column 1, lines 39-55 of Uemura, the positive electrode 11 is connected to external member 6 via bumps 1. Further, as shown in FIGS. 2A-2F and described at column 5, line 41 to column 6, line 12 of Uemura, the plating films (or pillars) 220 and solder bumps 240 are formed on positive electrode 120.

Thus, contrary to the Examiner's assertion, Uemura does not disclose forming a bonding pad on positive electrode 120.

In view of the above, the present claims are patentable over Uemura, either alone or in view of Nakajima. Applicants respectfully request reconsideration and withdrawal of the present §103 rejections of claims 12-20.

III. Conclusion

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be

best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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